

# GUIDANCE FOR USE OF SOCIAL SCIENCE

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Council Members' Training  
Silver Spring, Maryland  
October 23-25, 2007

# **Why Social Science if we are managing fish?**

- **Fishery managers don't manage fish; they manage people's access to fish ...**
- **Allocation decisions involve and affect cultural, sociological and economic patterns in society ...**
- **Conflict management requires the use of social science information and analysis...**



# Social Impact Assessment

- ◆ **The Social Impact Assessment (SIA) is an essential part of the fishery management process**
- ◆ **Together with the Ecological and Economic Impact Assessments, the SIA describes the “Human Environment”**
- ◆ **Without an SIA, an FMP or amendment will not be considered complete**

# People Active in the Fishery





# SIA Defined

- ◆ **An SIA is a scientific method of gauging the social and cultural consequences of alternative fishery management actions or policies**
- ◆ **An SIA determines socio-cultural conditions in human populations likely to be affected by the action or policy; projects future socio-cultural effects of continuing the status quo, and then estimates the socio-cultural effects of policy or action alternatives relative to the status quo**



# Legal Authorities for SIA

- ◆ **NEPA [40 CFR 1508.14] “human environment”**
- ◆ **MSA [MSA 303(a)(9)] “fishery impact statement”**
- ◆ **MSA [MSA 301(a)(8)] “sustaining fishing communities”**
- ◆ **MSA [MSA 303(b)(6) and 303A] “limited access programs”**



# **NEPA's “human environment”**

- ◆ **CEQ defined “human environment” to “include the natural and physical environment and the relationship of people with that environment”**
- ◆ **NEPA requires “the integrated use of natural and social sciences in planning and decision-making”**
- ◆ **NEPA requires consideration of “unquantified environmental amenities and values” on a par with quantifiable values.**



# Human Environment: Unquantifiable Values







# **MSA's “fishery impact statement”**

- ◆ **An FMP must assess, specify and describe the likely effects of conservation and management measures upon participants in a fishery and upon effected fishing communities**
- ◆ **This requirement provides the basis for all socio-cultural assessments in the FMP**



# MSA “sustaining fishing communities”

- ◆ **National Standard 8 requires that policies and regulations take into account the importance of fishery resources to fishing communities by utilizing economic and social data**
- ◆ **(A) to provide for sustained participation**
- ◆ **(B) to minimize adverse economic impacts as much as possible**

# Sustainability

*This*



*Or this*





# **MSA “limited access programs”**

- ◆ **Section 303(b)(6) is old, Section 303A is new and requires expanded analysis.**
- ◆ **FMPs must show in-depth consideration of socio-cultural factors, historical and present participation in and dependence on the fishery for participants and fishing communities.**
- ◆ **Access privileges must be fairly and equitably distributed among participants.**



# Other MSA mandates

- ◆ **Use of social factors in determining OY**
- ◆ **Consideration of impacts on commercial, charter and recreational fishing**
- ◆ **Fair and equitable allocation of fishery resources among user groups**
- ◆ **Consideration of impacts upon Treaty Tribes and indigenous peoples of the USA**

## Issues in social analysis

- ◆ **Social and cultural systems are sensitive to change**
- ◆ **Small changes can have large cumulative impacts on fishery participants**
- ◆ **Analysis is comparative (diachronic) to a baseline data set**





# Categories of social factors

- ◆ **Size and demographic characteristics of fishery work force and community**
- ◆ **Cultural norms, beliefs and values of fishermen, other stakeholders and communities**
- ◆ **Social structures and organizations related to fisheries, families and communities**
- ◆ **Non-economic aspects of the proposed action**
- ◆ **Historical participation in and dependence on the fishery by stakeholders and communities**



# Conducting a social assessment

- ◆ **Focus on the social structures, groups, communities, and social issues identified in the scoping process and in Council alternatives**
- ◆ **Social variables should be sought in an analytic rather than encyclopedic manner**
- ◆ **Before collecting new data, all existing databases should be scrutinized and used if appropriate**



# Level of social assessment

- ◆ **The fishery impact statement “winnows” the issues and factors**
- ◆ **Level of analysis selected must be appropriate to the action considered**
- ◆ **Fishery conflicts, limited access, and environmental justice issues will require a high level of analysis and data inputs**

# Who is involved?

- **In a fishery SIA it is assumed that**
  - **Fisherman = any commercial, recreational and/or subsistence fisherman**
  - **Vessel = any commercial, recreational, and/or for-hire vessel**
  - **Fishing industries and/or services = businesses primarily and directly associated with subsistence, commercial, and/or recreational fisheries**



# **Social and Cultural Entities Involved in a Fishery**

- ◆ **Commercial, Recreational, and Subsistence Fishery Participants including Treaty Tribes**
  - ◆ **Fishing Vessel Owners**
  - ◆ **Operators (Skippers)**
  - ◆ **Crew**
  - ◆ **United States Fish Processors**
- ◆ **Fishing Communities**
- ◆ **Fishery-Dependent Service Industries**



# Identification of Fishing Communities

- ◆ **Issue: What is a fishing community?**
- ◆ **Databases: What information is available to identify fishery engagement in, and/or dependence of, a community?**



# Elements of Community



**Family  
Involvement;  
Kodiak, AK**



**Community  
Involvement;  
Freeport, NY**



**Marine Services**





# Fishing Community

- ◆ A fishing community is a geographic place;
- ◆ A fishing community includes some or all of the participants/entities described above; and
- ◆ Is substantially dependent on fishery resources to meet community social and economic needs, and/or
- ◆ Is substantially engaged in the harvest and/or processing of fishery resources to meet community social and economic needs
- ◆ MSA 3(17) and 301(a)(8)



# **Not Fishing Communities under MSA**

- ◆ **Communities not substantially engaged in or dependent on fishery resources to meet community social and economic needs**
- ◆ **An avocational group, such as sport fishermen in general**
- ◆ **An occupational or professional group, such as gill-netters in general**



# Identification of Communities

- ◆ **Landings of fish (commercial, recreational and/or subsistence) &/or processing of fish**
- ◆ **Home community of vessel owner (commercial, recreational &/or for-hire) or fish processor**
- ◆ **Home port of vessel (“hail port”)**
- ◆ **Fishery-dependent services and industries**



# **Fishery Dependence Assessment Information**

- ◆ **All Census “place” demographic, income and employment data for community**
- ◆ **Weight and value of landings/product from particular fishery versus all fishery landings/product in that port**
- ◆ **Number of vessels, fishermen, processors and other participants operating from/in that port**
- ◆ **Social and cultural importance of fishery to the community**



# Assessment of socio-cultural and community impacts

- ◆ Probable positive and negative social, cultural and economic impacts of fishery management actions on communities are assessed
  - ◆ Baseline social data (“profile”) for community
  - ◆ Current social data for community
  - ◆ Changes in community sustainability relative to the baseline are discussed for each alternative
- ◆ FMP must contain a discussion of alternatives that minimize social, cultural and economic impacts within conservation and management goals
- ◆ Devise other alternatives that minimize impacts if needed





# **Social Factors Needed for a Fishery SIA**

- ◆ **Identification of the participants and communities involved in the fishery**
- ◆ **Demographic and fisheries employment data for participants and communities**
- ◆ **General demographic, economic, employment and social institutional data for communities**
- ◆ **Fishery-related cultural and social data for participants and communities**
- ◆ **Data for historic participation in and dependence on fisheries by participants and communities**



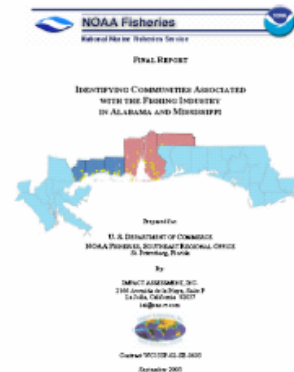
# The baseline case (status quo)

- ◆ **Demographic and occupational profiles of fishery participants and their seasonal round**
- ◆ **General demographic and employment profiles of communities involved in the fishery**
- ◆ **Social and cultural profiles of the fishery and communities involved in the fishery**
- ◆ **Fishery-related social institutions by community**
- ◆ **Historic participation in the fishery**

# **Community Profiles**

- **Community profiles for places and ports involved in fisheries [MSA §303(a)(9)] have been completed by NMFS for:**
  - **Alabama, Louisiana, Mississippi, Texas and West Coast of Florida**
  - **Alaska**
  - **California, Oregon and Washington**
  - **Hawaii and Pacific Island Territories**
  - **Some New England ports**

# Community Profiles: Alabama and Mississippi, Florida, Louisiana, and Texas



# **RFMC Community Studies**

- **Caribbean, Mid-Atlantic, New England, North Pacific, Pacific, South Atlantic, and Western Pacific Councils have separately undertaken community studies**
- **These studies differ in type and methods and care needs to be exercised before data is used in social or economic impact assessments**



# Standards and criteria for selection of social factors

- ◆ **Relevance** to the MSA or NEPA action or policy
- ◆ **Significance** of potential impact
- ◆ **Availability** of data
- ◆ **Efficiency** or substitutability of one factor for several
- ◆ **Sensitivity** or ability to register changes from baselines
- ◆ **Accuracy** or ability to yield consistent results
- ◆ **Validity** or representation by the measure of the factor



# Analysis of Social Impacts

- ◆ **Focus on stakeholder issues and manager's questions**
- ◆ **Use matrices to rank impacts whenever practicable**
- ◆ **Use descriptive and inferential statistics**
- ◆ **Use narrative and qualitative materials to “triangulate” results**



# Analysis of social factors

- ◆ A matrix of factors by alternatives is the simplest form of analysis
- ◆ Social factor  $\Rightarrow$  baseline case  $x$
- ◆ Baseline case  $x$   $\Rightarrow$  projected baseline  $y$
- ◆ Baseline case  $x$   $\Rightarrow$  projected alternate baseline  $z$
- ◆ Compare change in social factor in  $x$ ,  $y$ , and  $z$





# Use Descriptive Statistics

- ◆ Data analysis and statistics are basically concerned with *explaining variance*
  - ◆ Frequency distributions
  - ◆ Measures of central tendency
  - ◆ Simple indices of dispersion (modes, symmetry, and kurtosis)
  - ◆ Normal distribution
  - ◆ Linear Regression and Correlation



# Use Inferential Analysis

- ◆ Inferential statistics are based on the *assumption of representativeness*
- ◆ Sampling: scientific and non-scientific
- ◆ Statistical significance tests
  - ◆ Probability distributions
  - ◆ Null-hypothesis
  - ◆ “t” tests
  - ◆ Comparison of means
  - ◆ Chi-square tests



# Use Multivariate Analysis

- ◆ Permits analyst to compute changes in one or more variables.
  - ◆ General linear models
  - ◆ Multiple linear regression
  - ◆ Modeling for categorical variables; e.g. log-linear analysis



# Use Longitudinal Analysis

- ◆ Longitudinal data more likely to pinpoint causality than cross-sectional data
- ◆ Longitudinal analysis:
  - ◆ Cross-wave analysis of longitudinal data
  - ◆ Event-history analysis



# Monitor Social Change

- ◆ **Review and update community profiles every 3-5 years**
- ◆ **Maintain links with stakeholders**
- ◆ **Review and assess impacts of unanticipated changes**



# Improving Fishery SIA

- ◆ **NMFS continues to provide social impact assessment guidance to Councils ...**
  - ◆ **Ten anthropologists/sociologists hired since 2001 & assigned to Regions & Science Centers**
- ◆ **Councils have social science advisory panels**
- ◆ **ACCSP will provide social and economic data to E. Coast fishery managers**
- ◆ **NMFS is using GIS and rapid assessment strategies**

# Regional Fishery Management Council in Action

